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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/424,300	03/13/2000	YOSHIKAZU KANEKO	Q56361	7799

7590 12/06/2001

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EXAMINER

PIZIALI, ANDREW T

ART UNIT PAPER NUMBER

1775

9

DATE MAILED: 12/06/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-9

Office Action Summary

Application No.

09/424,300

Applicant(s)

KANEKO ET AL.

Examiner

Andrew T Piziali

Art Unit

1775

-- Th MAILING DATE of this communication appears on th cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-12 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,888,321 to Kazama in view of U.S. Patent No. 4,756,151 to Charvet.

Kazama discloses a steel wire having a diameter ranging from 0.1 to 0.4 mm (column 6, lines 20-33) obtained by subjecting a high-carbon steel wire material having a carbon content ranging from 0.80 to 0.89 in weight to heat treatment and wire drawing (column 3, lines 35-50). Kazama discloses that the upper limit of the tensile strength of the steel wire satisfies the formula $TS \geq -1960D + 4214$ (column 4, lines 35-40) where TS is the tensile strength in N/mm^2 and D is the diameter of the steel wire in mm. When $D=0.3mm$ formula $TS \geq -1960D + 4214$ results in a $TS \geq 3626 N/mm^2$, formula $TS \geq 2250-1450\log D$ results in a $TS \geq 3008 N/mm^2$, and formula $TS \geq 2750-1450\log D$ results in a $TS \geq 3508 N/mm^2$. Kazama satisfies the formula $TS \geq 2250-1450\log D$ and the formula $TS \geq 2750-1450\log D$ when $D=0.3mm$.

Kazama uses drawing dies ranging from 8-10 degrees with a bearing length of $0.3D$ (column 4, lines 6-18). Kazama also uses a final die area reduction of 1.2 to 3.9 % and immediately after passing through the final die the steel wire temperature is maintained below $150^\circ C$ (column 4, lines 6-18). Kazama uses a torsion test in which tension is lightly applied while the steel wire is twisted in one direction and then twisted in the reverse direction (column

Art Unit: 1775

7, lines 43-58). Kazama discloses that the steel wire possess not only a high tensile strength but also a high toughness along with good twisting efficiency and good fatigue resistance (column 4, lines 53-61). Kazama does not mention a breaking torsion value or a repeated torsion value, with or without 10% of the total volume removed from the surface, however, due to the substantially identical steel wire composition and manufacturing method The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Kazama does not mention preforming the steel wire to a minimum radius of curvature of 10 to 60 times its diameter, but Charvet discloses that it is common in the art of making pneumatic tires (column 1, lines 8-12) to preform steel wires to a radius of curvature less than 75 (column 1, lines 67-68 and column 2, lines 1-3). Charvet specifically gives an example of a steel wire preformed to a radius of curvature of 57 (column 4, lines 19-21). Charvet discloses that the correct radius of curvature to diameter ratio allows for the every plane to be perpendicular to the axis (column 4, lines 29-36). It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform the steel wires of Kazama to a radius of curvature to diameter ratio of 10-60, because use of a ratio in this range allows for every plane to be perpendicular to the axis.

Art Unit: 1775

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,888,321 to Kazama in view of the applicants disclosure of prior art.

Kazama does not mention preforming the steel wire to a minimum radius of curvature of 10 to 60 times its diameter, but in the applicants response filed on 11/5/2001 on page 8, lines 5-10 the applicant discloses that a "radius of curvature of 10-60 times its diameter is considered relatively severe for a steel filament, but one, which is employed when steel coils are manufactured as reinforcement for rubber articles". The applicant discloses that the ratio is common in the art of tire making. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a radius of curvature to diameter ratio of 10-60, because it is common practice in the art of tire making.

Response to Arguments

4. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

5. Claims 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 6-12 are allowed.

7. The following is an examiner's statement of reasons for allowance:

Japanese Patent No. 7-305285 to Takayuki is the best art disclosing a method of manufacturing a high-carbon steel wire with a diameter of 0.2 to 0.6mm with heat treatment and characterized in that the step of drawing is carried out according to steps 1-3 and 5 of applicants

Art Unit: 1775


disclosure in claim 5. Takayuki also discloses the strain at the final die to be 4.0. It would not have been obvious to one having ordinary skill in the art at the time the invention was made to use a reduction per die set from 4% to $(-8.3\epsilon + 40.6)$ for the final die or to thereafter use a bending operation with tension applied to the steel wire drawn through the final die.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Piziali whose telephone number is (703) 306-0145 and whose fax number is (703) 746-7037. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5665.


atp

November 30, 2001


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